



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

metamorphic origin and the additional evidence of the degenerative granulation of the crystalline rocks as a result of great pressure.

The report of Mr. Low on his remarkable explorations in the Labrador peninsula contain a vast amount of new and important information respecting this heretofore *terra incognita*. It is impossible to satisfactorily summarize this. It shows that besides vast areas of gneisses and granitoid rocks presumably referable to the Laurentian series, there are extensive belts of later rocks of clastic origin referable to the Huronian and Cambrian series as interpreted by the Canadian survey. The rocks classified as Cambrian comprise beds of arkose rock, sandstone, chert, dolomite, felsitic shale, argillite and argillaceous shale, together with gabbro, diabase and fine-grained decomposed traps and volcanic conglomerates. They appear to embrace those debatable beds which are referred by some of the United States geologists to pre-Cambrian horizons. There is ground to hope that this extended area of these formations will afford the means for their complete elucidation. The observations of Mr. Low have made it clear that this great Labradorean area has a complex geological structure and is far from being properly characterized as simply Laurentian or even Archæan.

Mr. Low's contributions to glacial geology are very important. They show an outward movement in all directions from the center of the peninsula. He locates the central névé ground (which is characterized by only slight traces of glacial motion) midway between the east and west coasts of the peninsula, and between 53° and 55° latitude. Its southern boundary is in places from 150 to 200 miles north of the southern water-shed. The report is accompanied by "Notes on the Microscopical Structure of some of the Rocks of the Labrador Peninsula," by Mr. W. F. Ferrier.

The chemical, mineralogical and statistical reports embrace a large mass of valuable data. Altogether the report is one of the most important issued by the survey.

T. C. C.

---

*Iowa Geological Survey, Vol. VI. Report on Lead, Zinc, Artesian Wells, etc.* SAMUEL CALVIN, State Geologist, A. G. LEONARD and H. F. BAIN, Assistant State Geologists. Des Moines, 1897.

This volume of 487 pages embraces reports on the "Lead and Zinc Deposits of Iowa," by A. G. Leonard; "The Sioux Quartzites and Cer-

tain Associated Rocks," by S. W. Beyer; "The Artesian Wells of Iowa," by W. H. Norton, and the "Relations of the Wisconsin and Kansan Drift Sheets in Central Iowa, and Related Phenomena," by H. Foster Bain.

Mr. Leonard describes the formations which embrace or are contiguous to the lead and zinc deposits, the mode of occurrence of these deposits, the association of the minerals and the particular forms of the ores. To these he adds special descriptions of the mines and a discussion of the origin of the deposits and the general methods of working them. He makes an important contribution to the general relationship of the ores in showing that in the Dubuque district zinc occurs in the higher horizons of the Galena limestone associated with the lead. This appears to require a modification of the generalization previously reached in Wisconsin and northwestern Illinois to the effect that the zinc usually occurs in lower horizons than the lead. The additional data appear to indicate that in their original deposition in the strata the zinc and lead were immediately associated with each other, and that their distribution in the crevices as the result of secondary action has been dependent upon the conditions of precipitation which were not uniform in all districts. Mr. Leonard regards the Archæan rocks as the original source of the lead and zinc, having been derived thence by surface decomposition and carried into the Silurian sea, from which in turn they were precipitated along with the gathering limestone. The precipitating agency he thinks was chiefly organic. He discusses the different theories of the localization of the metallic deposits, and concludes that on the whole Chamberlin's theory of oceanic currents offers the most plausible explanation. He regards the crevices as chiefly due to flexures of the strata aided by solution. He holds to the view that the minerals were carried into the crevices by lateral secretion from the surrounding limestones.

The rocks which Mr. Beyer finds associated with the Sioux quartzites embrace a series of slates and some olivine diabases. The slates he finds to conformably overlie the quartzite and to be somewhat interbedded with or graduated into the upper quartzitic layers. He regards the slates as an upward extension of the quartzite formation. In respect to the thickness of the quartzite formation he favors the lower estimate of Todd (1500 feet) rather than the higher estimate of Irving (3000 to 4000 feet), but regards both estimates as doubtful. He confirms the view of Irving that the quartzites were formed from siliceous

sandstones by interstitial growth. He favors the view that the quartzites are of early age, the probable equivalents of the Mankato and Baraboo quartzites.

Professor Norton introduces his discussion by a statement of the theory of artesian wells and their requisite conditions. He then describes the conditions of the Iowa field, discussing the geological structure, the area of supply, the reservoir and the conditions of transmission. This is followed by a description of the wells classified by sections. Under the head of chemistry of the waters he treats of the mineral ingredients, of the interpretation of analyses, and of the classification based on these; and also of the therapeutic, sanitary, and industrial qualities of the waters. He also touches upon the questions of public supply, of cost, of purity and of practical matters relative to drilling, thus giving to the report much popular as well as scientific interest.

The paper of Mr. Bain embraces a special study of the relations of the two drift sheets found in the vicinity of the capital. After a careful statement of the history of investigations, he describes, critically, the Des Moines lobe of the Wisconsin drift as it appears in Pope, Dallas, and Guthrie counties, and follows this by a similar critical discussion of the characteristics of the older drift which underlies it, and occupies the region lying to the south. An important feature of the paper is the discussion of time ratios as indicated by erosive and other phenomena. From the computation of special cases selected as being best suited to the purpose, he reaches the conclusion that the time ratio between the Wisconsin and the Kansan ranges from 1:10 to 1:15, being probably nearer the latter than the former.

The Iowa survey is to be congratulated upon the excellence of this report.

T. C. C.

---

*Geology and Natural Resources of Indiana; Twenty-first Annual Report.* By W. S. BLATCHLEY, State Geologist. Indianapolis, 1897.

This report of 718 pages embraces "An Introduction" and "The Natural Resources of Indiana," by W. S. Blatchley; "The Petroleum Industry in Indiana," by the same; "The Composition of Indiana Coals," by W. A. Noyes; "Some Notes on the Black Slate or Genessee Shale of New Albany," by Hans Duden; "The Indiana Caves and their Fauna," by W. S. Blatchley; "A Report on the Geology of the Middle